

WHAT IS CLAIMED IS:

1. A sheet-shaped medium processing apparatus that has a discharging means for discharging sheet-shaped medium of being transferred and a piling means for piling the sheet-shaped medium discharged from the discharging means, in which the sheet-shaped medium processing apparatus arranges to pile the sheet-shaped medium piled on the piling means, comprising:

an arranging means of having two functions of arranging function for arranging the sheet-shaped medium piled on said piling means after discharged from said discharging means at only fixed position in the direction (shift direction) perpendicular to said discharge direction and of sorting/arranging function for arranging the sheet-shaped medium in every copy at different position in the direction (shift direction) perpendicular to said discharge direction.

~~2. The sheet-shaped medium processing apparatus according to claim 1, wherein said arranging means is made up of a pair of arranging members and an arranging member driving device for operating the arranging members, and said arranging members have arranging sections that come into contact with end faces of said sheet-shaped medium in such a way as to put two end faces of said sheet-shaped medium in parallel to said discharge direction therebetween.~~

3. The sheet-shaped medium processing apparatus according to claim 2, wherein step shaped relief sections are formed at the head of said arranging sections in said arranging members with wider face-to-face interval than face-to-face interval of said arranging sections.

4. The sheet-shaped medium processing apparatus according to claim 3, wherein said face-to-face interval of relief section, in comparison with said face-to-face interval of arranging section, is wider interval than half of said shift amount at the time of the sorting/arranging function of arranging the sheet-shaped medium while shifting position only predetermined shift amount in the direction

(shift direction) perpendicular to said discharge direction.

5        5. The sheet-shaped medium processing apparatus according to claim 4, wherein said face-to-face interval of relief sections, in comparison with said face-to-face interval of arranging sections, is wider interval than interval in which inroad amount of said arranging members into inside of the sheet-shaped medium from the end face at the time of arranging the sheet-shaped medium is added to half of said shift amount at the time of the sorting/arranging function of arranging the sheet-shaped medium while shifting position only predetermined shift amount in the direction (shift direction) perpendicular to said discharge direction.

10        6. The sheet-shaped medium processing apparatus according to claim 1, wherein, at the time of exhibiting said sorting/arranging function, said arranging means conducts arrangement of the ultimate sheet-shaped medium of respective copies, after that, moving in the direction (shift direction) perpendicular to said discharge direction to wait position for the sake of arrangement of next copy with  
15        condition evacuated upward.

20        7. The sheet-shaped medium processing apparatus according to claim 1, wherein, at the time of exhibiting said sorting/arranging function, arrangement is conducted in such a way as to conduct actions in which one side of said arranging members is made not to move, and the other side of said arranging members reciprocates in the direction (shift direction) perpendicular to said discharge direction alternately in every copy.

25        8. The sheet-shaped medium processing apparatus according to claim 7, wherein said wait position before action of said arranging member of the side of operating the arranging action is taken to be upper surface position within the range where the copy already aligned at previous time is positioned.

9. The sheet-shaped medium processing apparatus according to claim 7, wherein action of arrangement by using said arranging means is made to prohibit

to initial sheet-shaped medium of the copy.

10. The sheet-shaped medium processing apparatus according to claim 1, wherein said one pair of arranging members is composed of plate shaped body in which said arranging sections are located at the most lowest section of said  
5 arranging members and opposite surfaces with each other are composed of plane surfaces perpendicular to said shift direction.

11. The sheet-shaped medium processing apparatus according to claim 1, wherein said arranging means have a moving means of the arranging members of moving in approaching/departing direction independently in which the moving  
10 means causes one side of said one pair of arranging members to move to the other side, or vice versa.

12. The sheet-shaped medium processing apparatus according to claim 11, wherein concave sections are formed at said upper surface of said piling means so that part of said one pair of arranging members capable of being placed  
15 downwards than the upper surface of said piling means.

13. The sheet-shaped medium processing apparatus according to claim 12, wherein said concave sections have a size capable of accommodating the arranging members at the time said arranging members conduct said arranging action to the sheet shaped medium at the minimum size.

14. The sheet-shaped medium processing apparatus according to claim 12, wherein said concave sections have a size capable of accommodating said one pair of arranging members even though at the time said arranging members move in the direction (shift direction) perpendicular to the discharge direction in order to conduct said sorting/arranging action.

15. The sheet-shaped medium processing apparatus according to claim 12, wherein when the sheet shaped medium is not piled on said piling means, the sheet-shaped medium is discharged from said discharging means under the  
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condition that part of said one pair of arranging members is located downwards than piled surface of the sheet-shaped medium of said piling means.

16. The sheet-shaped medium processing apparatus according to claim 12, wherein said arranging means has a supporting shaft for supporting said  
5 arranging members capable of being rotated and a restricting member for restricting rotation amount of said one pair of arranging members with said supporting shaft as center.

17. The sheet-shaped medium processing apparatus according to claim 16, wherein said one pair of arranging members is placed within said concave  
10 sections of upper surface of said piling means or arrangement operation position contacted to the top surface section of the sheet shaped medium piled on said piling means while rotating with moment by own weight.

18. The sheet-shaped medium processing apparatus according to claim 10, wherein when a position of departing from a position that is one in which said  
15 one pair of arranging members come into contact with the top surface of the sheet-shaped medium piled on said piling means is taken to be an evacuation position, there is provided an evacuating means for evacuating said one pair of arranging members while rotating from said arrangement operation position to said evacuation position.

20 19. The sheet-shaped medium processing apparatus according to claim 10, further comprising:

an ascent and descent means capable of going up and down said piling means; and

a positioning means for determining position of the piling means in up-  
25 and-down direction due to said ascent and descent means at the discharge time of the sheet-shaped medium from said discharging means so that the upper surface of said piling means or position of up-and-down direction of the top surface of said

sheet-shaped medium piled on the upper surface of said piling means becomes correct discharge position of being better suited for discharge for the sheet-shaped medium from said discharging means.

20. The sheet-shaped medium processing apparatus according to claim 5 10, wherein said one pair of arranging members are made from material whose coefficient of friction of part to be respective lower and sections of contacting with the sheet-shaped medium is smaller than coefficient of friction of the sheet-shaped medium therebetween.

21. The sheet-shaped medium processing apparatus according to claim 10 10, wherein said one pair of arranging members is operated by an arranging member driving device, and the arranging member driving device includes:

a fulcrum shaft for supporting to engage said one pair of arranging members in which the fulcrum shaft is common to said one pair of arranging members;

15 a push-movement shaft for rotating the arranging members with the fulcrum shaft as center while contacting with respective action points on respective arranging members of being shifted from said fulcrum shaft; and

a rotation stopping member capable of stopping rotation respectively due to rotational moment with said fulcrum shaft as center by own weight of said 20 arranging members, in which said fulcrum shaft serves as a guide shaft for guiding respective arranging members in said arrangement direction, and said rotation stopping member serves as a driving means for moving the arranging members in said arrangement direction.

22. The sheet-shaped medium processing apparatus according to claim 25 21, further comprising:

a switch-driving means for switching freely condition of conducting push-movement of respective said action points while acting on said push-movement

shaft, and condition of releasing the push-movement by said push-movement shaft.

23. An image forming apparatus that has an image forming means for conducting image formation on sheet-shaped medium and a conveying means for conveying the sheet-shaped medium of being subjected to the image formation, is provided with the sheet-shaped medium processing apparatus according to any one of claim 10 to claim 22.

24. A sheet-shaped medium after-treatment apparatus that has an after-treatment means for conducting after-treatment to sheet-shaped medium and a conveying means for conveying sheet-shaped medium of being subjected to the after-treatment, is provided with the sheet-shaped medium processing apparatus according to any one of claim 10 to claim 22.

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